


## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicants : Shuhei OGAWA, et al. **Confirmation No.: 8765**

U.S. Serial No. : 10/522,569

Filed : November 17, 2005

Examiner : Allan W. Olsen

Group Art Unit : 1792

For : ETCHING METHOD **Mail Stop Petition**

**RESPONSE TO NOTICE OF NON-COMPLIANT AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is in response to a Notice of Abandonment and a Second Notice of Non-Compliant Amendment mailed by the U.S. Patent and Trademark Office relative to the above-identified application on July 9, 2008. The above-identified application received a Notice of Abandonment for failure to timely and properly respond to a First Notice of Non-Compliant Amendment mailed on December 13, 2007, stating that Applicants did not show markups relative to the After-Final Amendment filed on July 9, 2007 in the original Amendment accompanying a Request for Continued Examination (RCE) filed on October 3, 2007.

In view of the foregoing, Applicants have appropriately amended the present listing of claims to show markups relative to the listing of claims presented in their Amendment filed November 6, 2006. In addition, Applicants respectfully submit a "Petition for Revival of an Application for Patent Abandoned Unintentionally Under 37 CFR 1.137(b)" accompanied with (i) a Petition Fee, and (ii) Reply (this Response). Also, attached hereto is a copy of an Amendment Accompanying a Request for Continued Examination and a Request for Continued Examination.

**REMARKS**

The Notice of Abandonment accompanied with the Second Notice of Non-Compliant Amendment dated July 9, 2008 has been received and its contents carefully noted.

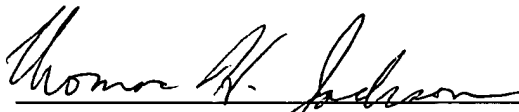
Applicants erred in their interpretation of 37 CFR 1.114 which was appropriately identified by Examiner Olsen in the Second Notice of Non-Compliant Amendment. The Examiner stated, "If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise".

By this response, Applicants have appropriately amended the present listing of claims to show markups relative to the listing of claims presented in their Amendment filed November 6, 2006. Claims 1 and 7 have been amended to reflect Applicant's request of non-entry of Applicant's Amendment in Response to Final Rejection of July 9, 2007. As such, Applicants respectfully request withdrawal and reconsideration of the Second Notice of Non-Compliant Amendment and revival of the present application and consideration of the attached Amendment Accompanying a Request for Continued Examination.

If any additional fees are due in connection with the filing of this paper, such as fees under 37 C.F.R. §§1.16 or 1.17, please charge the fees to Deposit Account 02-4300; Order No. 033082M239.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP



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Dated: September 9, 2008



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Confirmation No.: 8765

Applicants : Shuhei OGAWA et al.  
U.S. Serial No. : 10/522,569  
Filed : November 17, 2005  
Examiner : Allan W. Olsen  
Group Art Unit : 1763  
For : ETCHING METHOD

**AMENDMENT ACCOMPANYING REQUEST FOR CONTINUED EXAMINATION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Please amend the above-identified application as set forth below and consider the following remarks.

Applicant's respectfully request non-entry of Applicant's Amendment in Response to Final Rejection of July 9, 2007.

Amendment to the Claims can be found on pages 2 to 4.

Remarks can be found on pages 5 to 7.

**REMARKS**

Applicants have considered the Final Office Action mailed February 7, 2007.

Claims 1-5 and 7-12 are pending herein. By this Amendment, claims 1 and 7 have been amended, and claims 6 and 13-15 have been canceled.

Claim 1 has been amended to include the contents of canceled claims 6 and 14 therein. Claim 7 has been amended to include the contents of canceled claims 13 and 15 therein.

Applicants submit that the amendments herein do not raise new issues. Accordingly, Applicants respectfully request entry of this Amendment.

In the Office Action, claims 1-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,326,302 to Joubert ("Joubert") in view of U.S. Patent No. 6,869,542 to Desphande ("Desphande") and further in view of U.S. Patent No. 6,069,090 to Eriguchi ("Eriguchi").

In view of the amendments and remarks herein, Applicants respectfully request reconsideration and withdrawal of the rejection set forth in the Office Action.

\* \* \* \* \*

Applicants respectfully submit that claims 1-5 and 7-12 would not have been obvious over Joubert in view of Desphande and further in view of Eriguchi.

As noted above, claim 1 has been amended to include the contents of canceled claims 6 and 14, and claim 7 has been amended to include the contents of canceled claims 13 and 15. Thus, both claims 1 and 7 now include the following features:

- (i) the etching method is carried out by a capacitively coupled plasma etching system, which forms a high-frequency electric field between a pair of opposed electrodes disposed in the processing vessel to generate the plasma; and
- (ii) the distance between the electrodes is such that a distance between a first of said electrodes and a wafer disposed on a second of said electrodes is from 30 to 90 mm.

As a result of features (i) and (ii) above, a plasma of the etching gas can be securely generated between the two electrodes. Therefore, the CD shift value of etching can be securely and precisely controlled by adjusting a flow ratio of the O<sub>2</sub> gas to the NH<sub>3</sub> gas.

Neither Joubert, Desphande nor Eriguchi teaches features (i) and (ii) above.

According to the Office Action, Joubert teaches the use of conventional etching sources, with specific mention of LAM TCP and Applied Material PDS reactors. The Examiner takes official notice that conventional etching sources, particularly the reactors named in Joubert, have an electrode spacing within the claimed 30-90 mm range.

Joubert teaches the use of an induction coil coupled plasma etching system, wherein plasma is formed by using an induction coil. In such a system, the lower electrode of the system has nothing to do with the formation of the plasma. That is to say, the distance between the upper electrode (the first electrode) and the lower electrode (the second electrode) in the induction coil coupled plasma etching system is not selected based on whether a plasma will be formed.

On the other hand, in Applicants' claimed method, because a plasma is to be formed between the first and second electrodes in a capacitively coupled plasma etching system, the distance between the first electrode and the wafer disposed on the second electrode is an important factor in forming the plasma. In addition, the instant specification teaches at page 20, lines 3-9, that a capacitively coupled plasma etching system is preferred over other etching systems, including inductively-coupled type etching systems, "from a viewpoint of obtaining a higher etching selectivity at a suitable plasma density." Thus, the particular plasma etching system used in Applicants' claimed etching method is a significant feature of the claimed method.

Joubert does not teach or suggest the use of a capacitively coupled plasma etching system, and does not teach or suggest the combination of using a capacitively coupled plasma etching system and a distance between electrodes such that a distance between a first of said electrodes and a wafer disposed on a second of said electrodes is from 30 to 90 mm. Desphande and Eriguchi do not cure these deficiencies.

Thus, for at least this reason, Applicants submit that claims 1-5 and 7-12 would not have been obvious over Joubert in view of Desphande and further in view of Eriguchi.

In view of the amendments and remarks herein, Applicants respectfully request that the rejection set forth in the Final Office Action be withdrawn and that claims 1-5 and 7-12 be allowed.

If any additional fees are due in connection with the filing of this paper, such as fees under 37 C.F.R. §§1.16 or 1.17, please charge the fees to Deposit Account 02-4300; Order No. 033082M239.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP



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